A type holder positioning device for a teletypewriter or the like including a shaft to which the holder is fixed, a pair of flanges on the shaft between which a rod is located to raise and to lower the shaft and holder. The holder therefore does not interfere with the reading of a typed message during intervals of non-use or where one or a series of spaces are upcoming. A solenoid operator and a solenoid releasable latch work in concert from present and future space information to control the position of the shaft and holder. Operation of the operator and latch also reduces equipment wear.

2 Claims, 6 Drawing Figures
TYPE HOLDER POSITIONING DEVICE FOR TELETYPETRITION OR THE LIKE

BACKGROUND OF THE INVENTION

This invention relates to teletypewriters and, more particularly, to a type holder control therefor.

In the past, it has been the practice to operate a teletypewriter with a type wheel covering a portion of the typed message. This is undesirable because it delays the receipt of the message.

SUMMARY OF THE INVENTION

In accordance with the device of the present invention, the above-described and other disadvantages of the prior art are overcome by a mechanism which raises and lowers a type holder at logical intervals.

Another feature of the invention resides in the use of a rod between two flanges on the holder shaft to move the holder between printing and standby positions.

The above-described and other advantages of present invention will be better understood from the following description when considered in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which are to be regarded as merely illustrative:

FIG. 1 is a diagrammatic view of a portion of a conventional teletypewriter system;

FIG. 2 is a perspective view of a modification of a portion of the system of a FIG. 1;

FIG. 3 is a block diagram including circuits which may be employed in accordance with the present invention;

FIG. 4 is a block diagram of portions of the blocks shown in FIG. 3;

FIG. 5 is a schematic diagram of a circuit constructed in accordance with the present invention;

FIG. 6 is a diagrammatic view of a teletypewriter type wheel position control constructed in accordance with the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1, an entirely conventional portion of a teletypewriter system is shown including a base 10 on which a platen element or platen 11 is rotatably mounted. Paper is advanced vertically on the platen 11 in the position as indicated at 12. A mechanism 13 is provided to rotate the platen 11.

A type wheel is provided at 14 having different types 15 fixed relative thereto.

Type wheel 14 is fixed to a shaft 16 which is rocked about the axis of a shaft 17 to cause a type 15 to engage paper 12. If desired, paper 12 may be conventional inked paper.

The particular type 15 selected may be so selected by rotation of wheel 14. A mechanism 18 controls the aforementioned rocking action of shaft 16 and the rotation thereof.

Shaft 16 is also moved by mechanism 18 in the direction of the axis of shaft 17 to create a line of type.

The system of FIG. 1 may receive binary coded characters in serial form on an input lead 19 which are impressed upon an input circuit 20.

A paper advance circuit 21 is connected from input circuit 20 to mechanism 18 to control the position of shaft 16 along the axis of shaft 17. A character selection and impression circuit 23 is connected from input circuit 20 to control the character selected and the impact of the corresponding type on paper 12 against platen 11.

In accordance with the present invention, the system of FIG. 1 is modified in one respect as indicated in FIG. 2. In FIG. 2, a shaft 24 is connected to mechanism 18. Shaft 24 may be identical to shaft 16. However, shaft 24 has a splined bore at its upper end and open thereat to receive a corresponding splined shaft 25. A type wheel 26, which also may be described as a ‘type holder element,’ is fixed to shaft 25. Flanges 27 and 28 are also fixed relative to shaft 25. A member or rod 29 fits between flanges 27 and 28. Shaft 29 is press fit through L-shaped links 30 and 31 that are rotatably mounted from brackets 32 and 33, respectively. Brackets 32 and 33 have their lower ends fixed to mechanism 18.

In accordance with the present invention, in FIG. 3, the incoming pulses arrive on an input lead connected from a pulse source 34 to a character register 35, and are entered in serial fashion in the character register 35. After a suitable time delay, they are entered in a storage register 36 via a logic circuit 37. The output of the storage register 36 is employed in controlling the teletypewriter.

As is conventional, logic circuit 37 includes, for example, two AND gates for each flip flop in register 36. Two such AND gates are indicated at 38 and 39 in FIG. 4. One flip flop is provided in register 36 for each flip flop in register 35. A flip flop 40 is connected in register 36. The corresponding flip flop in register 35 will have a “1” output connected to an input lead 41 to AND gate 38. The same flip flop in register 35 will have its “0” output connected to an input lead 42 to AND gate 39. A transfer pulse is impressed upon the lead 43. The transfer pulse may be the first pulse in each word series which also resets all the flip flops in register 35 to “0.”

Character and storage registers 35 and 36, respectively, are again shown in FIG. 5. Register 35 has an input lead 35’ and includes a space bit 44 and an entered bit 45.

Register 36 includes a space bit 46. Three differentiators 47, 48 and 49 are also shown in FIG. 5. All of these differentiators may be identical if desired. However, as shown, differentiator 48 has a diode 50 which is poled in a direction opposite the direction in which the diodes are poled in differentiators 47 and 49.

Differentiator 47 includes a capacitor 51 connected from the “1” output of flip flop 45 to a junction 52. Junction 52 is connected to a junction 53. Junction 53 is connected to the input of a one-shot multivibrator 54. A diode 55 is connected in parallel with a resistor 56 between junction 53 and a junction 57, being grounded.

The “0” output of one-shot 54 is connected to the input of the differentiator 48. The output of differentiator 48 is connected to an inverter 58. The output of inverter 58 is connected to the output of the differentiator 49.

The input to differentiator 49 is connected from the “1” output of flip flop 44. The output of differentiator

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49 is connected to a one-shot multivibrator 60. Windings 61 and 62 of solenoid operators, to be disclosed, are also shown in FIG. 5. An AND gate 63 has one input connected from junction 59, AND gate 63 has a second input connected from the "0" output of flip flop 44. AND gate 63 has a third input connected from "1" output of flip flop 46. The output of AND gate 63 operates a switch 64 which may be a conventional electromagnetic or electronic switch, as desired. A source of potential 65 is connected through switch 64 to winding 61.

An AND gate is also provided at 66. AND gate 66 receives "1" input from junction 59 and another input from the output of one-shot 60. The output of AND gate 66 is employed to operate a switch 67 which may be identical to switch 64, if desired. A source of potential 68 is connected to winding 62 through switch 67.

As shown in FIG. 6, type wheel 26 has types 69 thereon. Link 30 is shown in a slightly different form having three legs 70, 71 and 72. Link 30 is rotatable about the axis of a pin 73. A solenoid operator 74 is actuable by energization of winding 61. This moves a plunger 75 to the right, as viewed in FIG. 6. Plunger 75 then engages the lower end of leg 71 and rotates link 30 about the axis of pin 73 in a counter-clockwise direction. Because type wheel 26 is shown in the up position in FIG. 6, and both windings 61 and 62 are shown de-energized, the right end of plunger 75 is then spaced from leg 71 as shown. This spacing is due to the fact that latch means including an arm 76 lies in engagement with a stop 77 and is held there by a spring 78, arm 76 being pivoted about a shaft 79. Link 30 thus cannot rotate in a clockwise direction with the parts in the positions shown in FIG. 6. Specifically, the lower end of arm 76 engages the upper end of leg 72.

Arm 76 has a ferromagnetic armature 80 fixed thereto in alignment with a ferromagnetic core 80 of winding 62.

From the foregoing, it will be appreciated that windings 61 and 62 are not energized simultaneously. From the position shown in FIG. 6, if it is desirable to allow type wheel 26 to rest in its lower or standby position, winding 62 is energized. Link 30 then rotates in a clockwise direction. Type wheel 26 may thus be lowered by force of gravity.

From the foregoing, it will also be appreciated that, if desired, windings 61 and 62 need be energized only momentarily. When type wheel 26 is in its upper position, it is in the position to type. In its lower position, type wheel 26 is in a standby position.

When in the standby position, type wheel 26 may be raised by energizing winding 61.

OPERATION

In the operation of the invention, all the flip flops in character register 35 shown in FIGS. 3 and 5 are set to "0" by the first pulse. The serially provided incoming binary bits are then stored in successions in the flip flop in character register 35. Flip flop 44 is set to a "1" state when a space is desired. Flip flop 44 is set to the "0" state when no space is desired. Flip flop 45 is set to the "1" state last to indicate that a character now is contained in character register 35.

As stated previously, storage register 36 contains the character code which is acted upon by the teletype writer. Character register 35 thus contains the code which follows the code in storage register 36. Differentiator 47 produces a positive output pulse when flip flop 45 is set to the "1" state. One-shot 54 produces a negative pulse after a time delay which is differentiated by differentiator 48 and inverted by inverter 58.

The logic of AND gate 63 is such that when flip flop 44 has a high "0" output, it indicates that there is a character to be typed in rather than the next space left blank. When the "1" output of flip flop 46 is high this indicates that no character should be typed in the current space. Winding 61 is energized during the output pulse of inverter 58.

The logic of AND gate 66 is such that when the next word shows a space (the "1" output of flip flop 44 is high), switch 67 is closed by the pulse output of inverter 58 and winding 62 is energized.

"Stored" is hereby defined for use herein and in the claims to mean "motionless."

The phrase "first means," as used herein and in the claims, may include mechanism 18 shown in FIG. 1.

The phrase "second means," as used herein and in the claims, may include solenoid operator 74 shown in FIG. 6.

The phrase "third means," as used herein and in the claims, may include storage register 36 shown in FIG. 3.

The phrase "fourth means," as used herein and in the claims, may include character register 35 shown in FIG. 3.

The phrase "fifth means," as used herein and in the claims, may include apparatus connected from character register 35 and storage register 36 to energize winding 61 in FIGS. 5 and 6.

The phrase "sixth means," as used herein and in the claims, may include apparatus connected from character register 35 to energize winding 62 in FIGS. 5 and 6.

What is claimed is:

1. In a teletype writer or the like, the combination comprising: a base; a type holder element having an external cylindrical surface; a plurality of different types fixed to the cylindrical external surface of said holder element in positions extending circumferentially therearound; a platen element mounted on said base to carry paper, said holder element being rotatable to select one type for engagement with paper on said platen element, one of said elements being movable horizontally so that a line of characters may be typed on the paper in succession; a shaft having a vertical axis; first means mounted on said base to support said shaft, said holder element being fixed relative to said shaft in a position such that said holder element cylindrical surface is concentric with said shaft axis; a member mounted for guided movement on said first means, said member being movable from a first position to a second position in a manner to engage said holder element and to move the same to an upper printing position, said member being constructed and mounted to move from said second position to said first position thereof, said holder element falling to a lower standby position when said member moves to said first position thereof; second means mounted on said first means and having a lost motion connection with said member, said second means being actuable momentarily to move said member from said first position to said second position thereof; and latch means mounted on said first means to lock said member in said second position therefrom.
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each time said second means is actuated, said latch means being actuable momentarily to release said member, said member falling to said first position thereof when released by said latch means.

2. The invention as defined in claim 1, including an input lead on which coded sets of input signals corresponding to each type font are received, third means to store a coded set to effect printing of a character, fourth means to store a coded set to effect the printing of the next succeeding character, fifth means connected from said third and fourth means to actuate said second means when the character in said third means is a space and the character in said fourth means is not a space, sixth means connected from said fourth means to actuate said latch means when the coded set of a character stored in said fourth means indicates that no character should be typed.

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